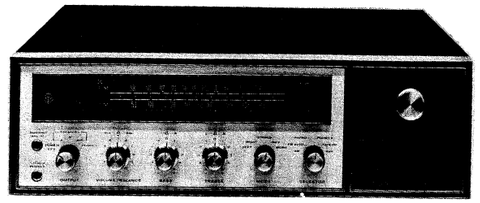
KENWOOD

SOLID STATE AM-FM STEREO RECEIVER

TK-140X



SPECIFICATIONS

AMPLIFIER SECTION

OUTPUT POWER:	250 watts ±1dB at 4 ohms 210 watts ±1 dB at 8 ohms
DYNAMIC POWER (IHF):	200 watts at 4 ohms 170 watts at 8 ohms
CONTINUOUS POWER:	
EACH CHANNEL DRIVEN:	80 watts/80 watts at 4 ohms 60 watts/60 watts at 8 ohms
BOTH CHANNELS DRIVEN:	53 watts/53 watts at 8 ohms
DISTORTION:	
HARMONIC DISTORTION:	Less than .5% at rated output
INTERMODULATION DISTORTION:	Less than .5% at rated output Less than .2% at −3dB rated output
FREQUENCY RESPONSE:	
MAIN INPUT:	8 Hz to 120,000 Hz ±1.5 dB
AUX INPUT:	20 Hz to 30,000 Hz ±1.5 dB
POWER BANDWIDTH (IHF):	15 Hz to 30,000 Hz
CHANNEL SEPARATION:	Better than 50 dB
INPUT SENSITIVITY & INPUT IMPEDANCE:	
(For rated output):	MAG 1.2. . . 2mV (50K ohms) TAPE HD. . . 2.2 mV (100K ohms) AUX. . . 160 mV (100K ohms) TAPE PLAY. . (Pin Jack) 160mV (100K ohms) (R.P. Connector)160 mV (100K ohms) MAIN IN. . . 100 mV (100K ohms)
RECORDING OUTPUT:	(Pin Jack) 160 mV (Dubbing) 160 mV (R.P. Connector) 32 mV
MAXIMUM INPUT SIGNAL: (at MAG Input)	180 mV (P-P 1,000 Hz)
HUM AND NOISE:	PHONO 1.2 (MAG) 65 dB
(Below rated output)	TAPE HD 63 dB AUX 75 dB TAPE PLAY 75 dB
	Noise at minimum volume control . . . Less than 1.5 mV at 8 ohms or .28 micro watts (83 dB)
DAMPING FACTOR:	28 at 8 ohms (output impedance of speaker is .286 ohms.)
SPEAKER IMPEDANCE:	4,8 and 16 ohms
BASS CONTROL:	±10 dB at 100 Hz
TREBLE CONTROL:	±10 dB at 10,000 Hz
HIGH FILTER:	3,000 Hz Cutoff
LOW FILTER:	200 Hz Cutoff
LOUDNESS CONTROL:	+10 dB at 100 Hz, +5 dB at 10 kHz (at −30 dB)
OUTPUT SWITCH:	Power Off, A speakres, B speakers, A-B speakers and Phones
MODE SWITCH:	Left, Right, Stereo, Rev. & Mono
SELECTOR SWITCH:	AM, FM, PHONO, TAPE HD & AUX
KEYBOARD TYPE SWITCHES:	Loudness, Tape Monitor, Muting, Low Filter and High Filter
OUTPUTS:	2 pairs of stereo speaker terminals, Center channel output (low level), Pre-amp. output, Tape recording output, Head phone jack, AC outlet.

TUNER SECTION

FM:	
ANTENNA IMPEDANCE:	300 ohms balanced 75 ohms unbalanced
SENSITIVITY (IHF):	1.7 μV
HARMONIC DISTORTION:	Less than .5% 400 Hz 100% Mod.
SIGNAL TO NOISE RATIO:	Better than 65 dB
CAPTURE RATIO:	1.0 dB
IMAGE REJECTION:	Better than 100 dB
HARMONIC SPURIOUS RESPONSE:	Better than 100 dB
IF REJECTION:	Better than 100 dB
SELECTIVITY (Alt. channel):	45 dB
FM IF STAGE:	4 IC's. (Integrated Circuits)
FM FRONT-END:	3 FET's, 4 gang tuning condenser
INTER STATION MUTING:	Keyboard switch
FM SPURIOUS RADIATION:	Less than 34 dB
AM:	
SENSITIVITY (IHF):	15 μV at 1,000 kHz
IMAGE REJECTION:	90 dB at 1,000 kHz
SELECTIVITY:	Better than 25 dB

SPECIAL FEATURES: IC's & Mechanical Filter IF Circuit, 3 FET's 4 Gang Tuning Condenser Super Sensitive Front-End Inter Station Muting Circuit, Heavy Fly-Wheel Tuning Dial, New Large Tuning Dial, New Large Tuning Meter, 300 ohms and 75 ohms Antenna Inputs, Unique Keyboard Type Control Switches. Power Transistor Protection Circuit Separate Pre-amp. Output and Main amp. Input, Illuminated Smoked Glass Dial, Low Filter and High Filter, Tape Monitor, Stereo Phone Jack. 2 Set of Speaker Systems. Dubbing Tape Recording Jack. 6n Front Panel.

SEMICONDUCTORS:	4 IC's, 3 FET's 44 Transistors, 33 Diodes, 2 Thermisters.
POWER CONSUMPTION:	250 watts at full power. 34 watts at no signal.
DIMENSIONS:	16½" W, 5¾" H, 12¾" D.
WEIGHT:	28.5 Lbs Net weight 33.0 Lbs Shipping weight

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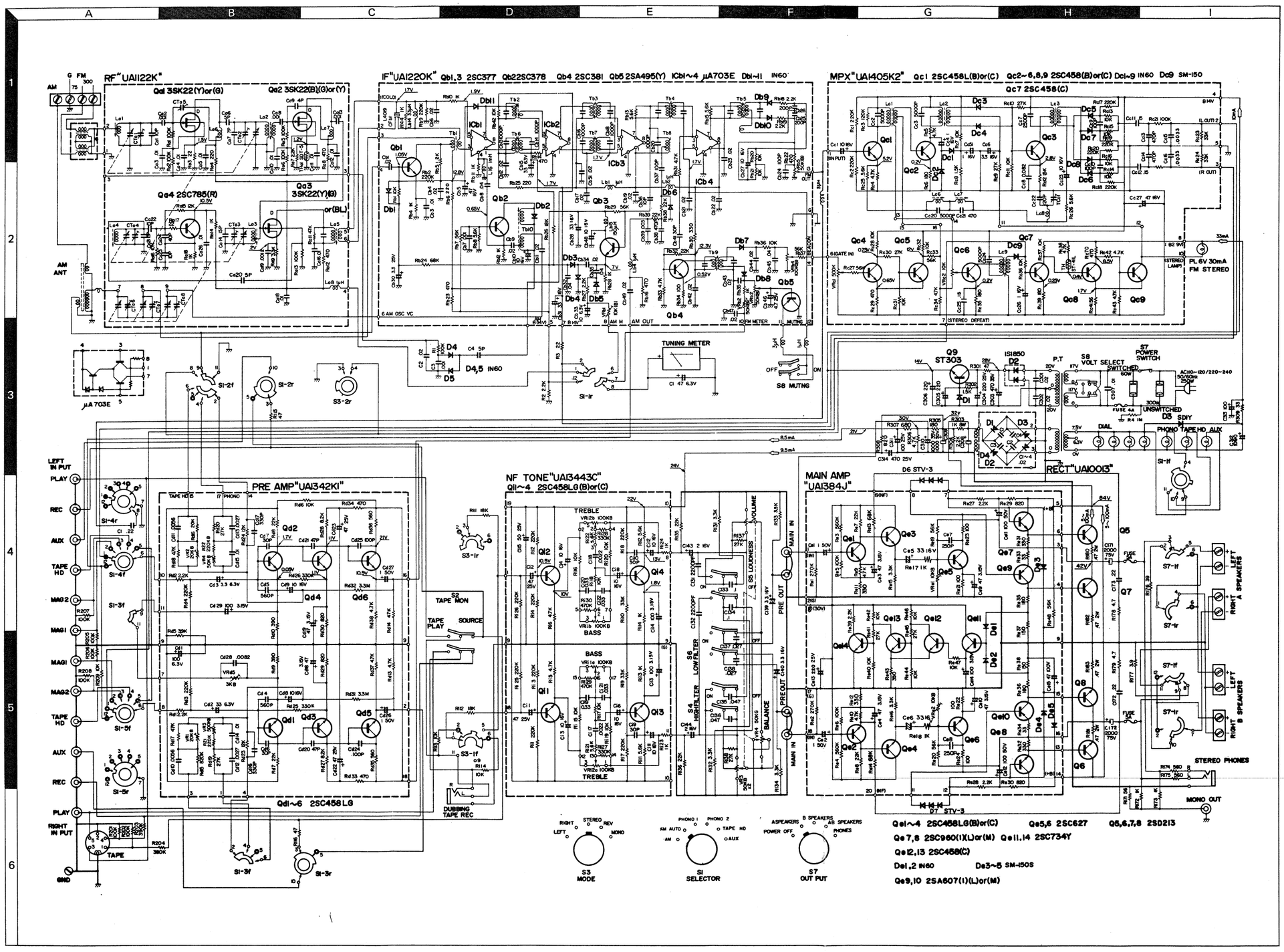

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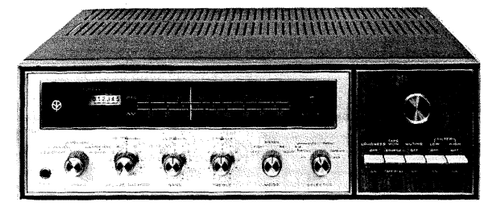
KENWOOD

SOLID STATE AUTOMATIC AM-FM STEREO RECEIVER

TK-140



SPECIFICATIONS

AMPLIFIER SECTION:

TOTAL MUSIC POWER:	130 watts (IHF Standard 4 ohms) 120 watts (IHF Standard 8 ohms)
CONTINUOUS POWER:	50 watts per channel (0.5% T.H.D.)
FREQUENCY RESPONSE:	20 Hz — 50,000 Hz (±2 dB)
POWER BANDWIDTH:	20 Hz — 30,000 Hz (–3 dB)
SIGNAL TO NOISE RATIO: (below rated output)	Phono – 63 dB, Tape HD – 63 dB, Tape Play – 70 dB, AUX – 70 dB
INPUT SENSITIVITY:	Phono 2 mV, Tape HD 2.5 mV, Tape Play 150 mV, AUX 150 mV
MAXIMUM INPUT SIGNAL: (Mag Input)	100 mV P-P (1,000 Hz)
DAMPING FACTOR:	46 (16 ohms), 23 (8 ohms)
LOW FILTER:	80 Hz roll-off
HIGH FILTER:	6,000 Hz roll-off
BASS CONTROL:	±10 dB (at 50 Hz)
TREBLE CONTROL:	±10 dB (at 10,000 Hz)
VOLUME CONTROL TRACKING ERROR:	Within 3 dB
CENTER CHANNEL OUTPUT:	Yes
SPEAKER IMPEDANCE:	4, 8 or 16 ohms

TUNER SECTION:

USABLE SENSITIVITY:	FM; 2 microvolts (IHF Standard) AM; 10 microvolts (IHF Standard)
FM FREQUENCY RESPONSE:	20 — 20,000 Hz ±2 dB
FM HARMONIC DISTORTION:	0.6% (1,000 Hz 100% mod.)
FM SIGNAL TO NOISE RATIO:	60 dB
FM CAPTURE RATIO:	2.5 dB
FM SELECTIVITY: (Alt. Channel)	45 dB
FM STEREO SEPARATION:	38 dB (at 400 Hz)
FM IMAGE REJECTION:	66 dB
FM SPURIOUS RESPONSE:	80 dB
FM IF STAGES:	5 stages
FM STEREO MONO AUTO. SWITCHING:	Yes
FM INTERSTATION MUTING:	Yes
AM-FM FRONT END:	FET 4-gang (FM), 3-gang (AM)
POWER CONSUMPTION:	AC 110 — 120 or 220 — 230 volts, 250 watts (at full power) Amps sold in Europe operate only on 220 — 230 volts 50/60 Hz
DIMENSIONS:	16½" W, 5¼" H, 14¼" D
WEIGHT:	31 Lbs.

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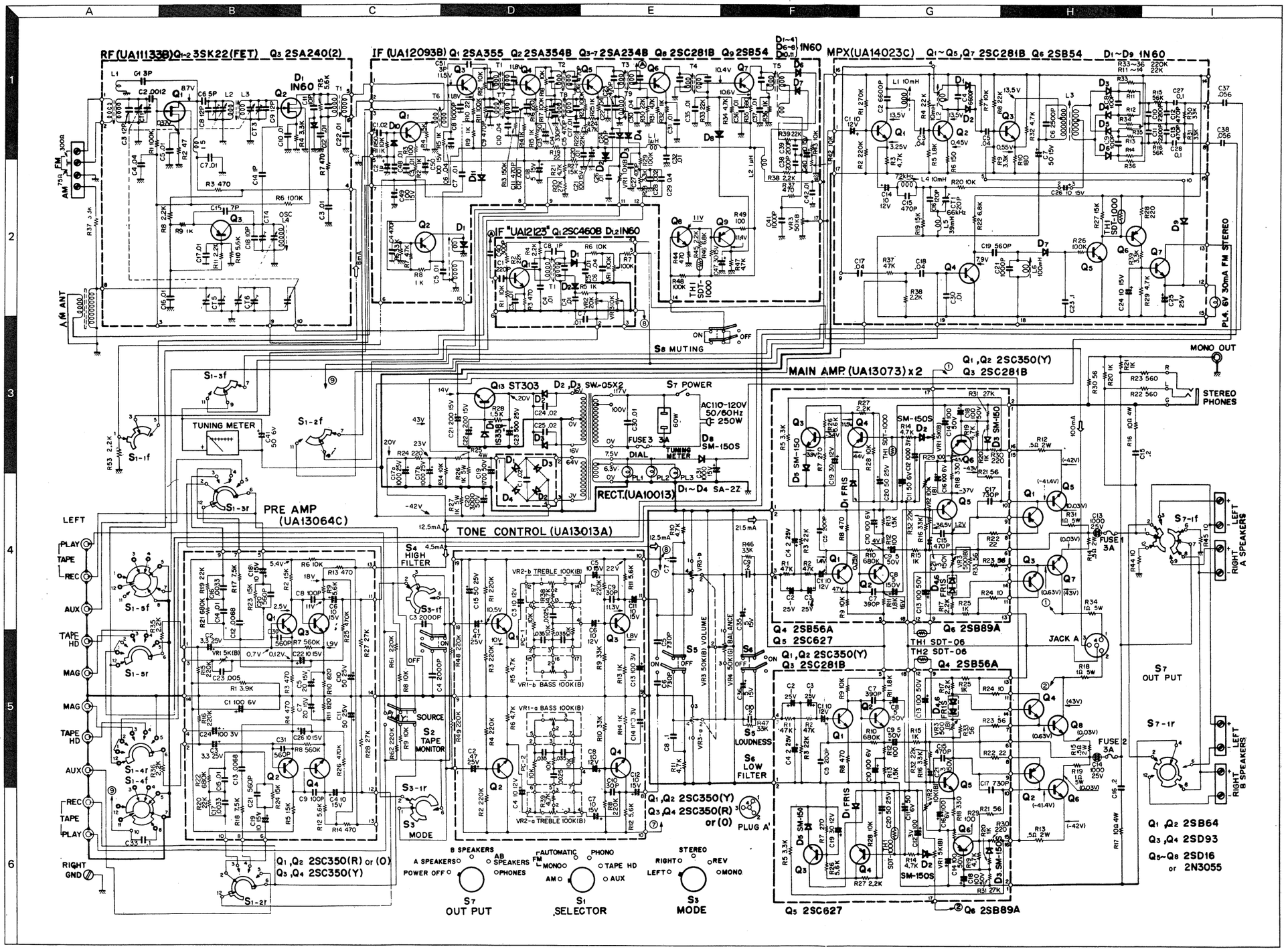

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Ex. 1. One PCB ass'y
Refer to the KT-2001's schematic diagram. (X05-0006-11)

NO.	ALIGN	TEST EQUIPMENTS		TUNER SETTING	OUTPUT INDICATOR	ADJUSTMENT POINTS	REMARKS
		CONNECTION	SETTING				
FM SECTION							
1	IF	Ⓐ and Ⓑ	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	SSVM & scope to REC jack	Ta3, 5～7	Maximum deflection
2		—	—	—	T meter	Ta8 (primary)	Make the pointer position in the center of the meter
3		Ⓐ and Ⓑ	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	SSVM, scope & distortion meter to REC jack (L)	Ta8 (secondary)	Maximum deflection and minimum distortion
4	OUTPUT	ditto	95 MHz 1 kHz (Mod) 75 kHz (Dev) 60 dB (Input)	95 MHz	ditto	VRa2	Output voltage is 1V*
5	TRACKING	ditto	90 MHz 1 kHz (Mod) 75 kHz (Dev)	90 MHz	ditto	Ta1～4	Maximum deflection
6			108 MHz 1 kHz (Mod) 75 kHz (Dev)	108 MHz		CTa1～3	
7	SCA	AG to (B)	67 kHz	Non-station	SSVM & scope to (C)	Ta15	Minimum deflection
8	19 kHz 38 kHz	Ⓑ and Ⓒ	98 MHz 1 kHz (Mod) 68.25 kHz (Dev) Phase : Reverse 60 dB (Input)	95 MHz	SSVM & scope to REC jack (L)	Ta13, 14	Maximum deflection
9	SEPARATION	ditto	95 MHz 67.5 kHz (Dev.) 1 kHz (Mod.) 60 dB (Input) L or R (SELECTOR)	95 MHz	ditto	VRm1	Minimum deflection
10	BEACON	ditto	95 MHz 40 kHz (Dev.) 1 kHz (Mod.) 60 dB (Input)	95 MHz	Stereo Indicator	VRa4, 5	Indicator lights
11	DISTORTION	ditto	95 MHz 1 kHz (Mod) 68.25 kHz (Dev) L (Select) 60 dB (Input)	95 MHz	SSVM, scope & distortion meter to REC jack (L)	Ta3, 5～7	Minimum distorstion
AM SECTION							
1	IF	Ⓑ and Ⓓ	1000 kHz 400 Hz, 30% (Mod) 100 dB	1000 kHz	SSVM & scope to REC jack (L)	Ta10～12	Maximum deflection
2	TRACKING	ditto	600 kHz 400 Hz, 30% (Mod) 100 dB	600 kHz	ditto	Ta9 Bar antenna	ditto
3			1400 kHz 400 Hz, 30% (Mod)	1400 kHz		CTa4, 5	
4	S METER	ditto	1000 kHz (400 Hz, 30% Mod.)	1000 kHz	S meter	VRa3	The meter deflection at 4.5

* Some products don't have the output-level adjusting potentiometer.

Ex. 2. more 2 pieces of PCB ass'y
Refer to KT-5000's schematic diagram. (X01-0025-11, X02-0020-11 and X04-0003-13).

NO.	ALIGNMENT	TEST EQUIPMENTS		TUNER SETTING	OUTPUT INDICATOR	ADJUSTMENT POINTS	REMARKS
		CONNECTION	SETTING				
FM SECTION							
1	IF	Ⓐ	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	Ⓑ	Ta1, LB2, 3, 5	Maximum deflection
2	T METER	—	—	—	T meter	Lb8 (Bottom)	Make the pointer postion in the center of meter
3	DISCRIMINATOR	Ⓐ	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	Ⓑ	Lb8 (Top)	Maximum deflection and minimum distortion
4	TRACKING	ditto	90 MHz 1 kHz (Mod) 75 kHz (Dev)	90 MHz	ditto	La1～4	Maximum deflection
5		ditto	108 MHz 1 kHz (Mod) 75 kHz (Dev)	108 MHz	ditto	CTa1～5	ditto
6	OUTPUT	ditto	85 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	85 MHz	ditto	VRb1	Output is 1V.
7	S METER	ditto	ditto	ditto	S meter	Lb7 VRb2	The meter deflection 4.5.
8	SCA	Connect the base of Qb6 to GND through 470 pF and AG to #1 of MPX (X04-0010-10)	AG 67 kHz (f) 0.5V (Output)	—	Connect the oscilloscope and VTVM to the secondary center of L3	Lc3	Minimum deflection
9	BEACON (SUB)	Ⓒ	95 MHz (60 dB) 68.25 kHz (Dev) 1 kHz (Mod) L+R	95 MHz	Stereo indicator	VRc1	Indicator lights
10	SUB CARRIER	ditto	95 MHz (60 dB) 68.25 kHz (Dev) 1 kHz (Mod) L−R	ditto	Ⓑ	Lc1, 4	Maximum deflection
11	BEACON (19 kHz)	ditto	95 MHz (60 dB) 40 kHz (Dev) 1 kHz (Mod) L−R	ditto	Stereo indicator	VRc1	At the point of becoming light on
12	BEACON (INPUT)	ditto	95 MHz (16.3 dB) 68.25 kHz (Dev) 1 kHz (Mod) L−R	ditto	ditto	VRb4	ditto
13	SEPARATION	ditto	95 MHz (60 dB) 68.25 kHz (Dev) 1 kHz (Mod) L or R	ditto	Ⓑ	VRm1	Minimum deflection
14	MUTING	Ⓐ	95 MHz (60 dB) 75 kHz (Mod) 1 kHz (Mod)	ditto MUTING: ON	ditto	VRb3	Under the antenna input level is 9.5 dB output level becomes 40 dB lower

When adjusting AM circuit, refer to AM SECTION in EX.1.
* Each model has its own value, refer to the service manual.